

2

The address space of the current IPv4 Internet is rapidly being consumed, to the point where organizations with legitimate needs for large blocks of addresses are having a hard time obtaining them. In response, some major old schemes to hide "private" addresses behind some kind of address-translating gateway have been proposed [RFC 1631].

It's common to solve this problem with much larger 120-bit addresses. With a total number of 2^{120} or 3.4×10^{36} addresses available, address exhaustion might not be an issue again for a long, long time. However, large addresses mean that hierarchical address assignment, formerly regarded as being wasteful, is practical after all.

2.6 Dynamic Address Assignment

IPv6 has been designed to allow hosts to configure their IP addresses without a human being having to intervene, but plug the IPv6 modules into the net, boot it up, and it will figure out its address "automagically". The mechanism for doing this is provided. First, the machine can use the IPv6 version of the Dynamic Host Configuration Protocol (DHCP) to query a local DHCPv6 server for the needed information, or the machine can construct its address from the 48-bit MAC address of its interface card (IAC addresses are assigned by the card manufacturer and are supposed to be globally unique) and use the IPv6 local subnet prefix it can learn from listening for packets from its neighbors.

2.2 Labeled Flows

The IPv6 packet header includes a new 24-bit field called the traffic-flow identifier. This should be useful for IPv6 quality of service (QoS) implementations, as the packets that belong to a connection for which a specific QoS was requested can be labeled with a unique identifier, allowing intermediate routers to make sure that the packets are treated as such.

www.elsevier.com/locate/jmb

IP-6 Multicast support

IP-6 supports multicast traffic (see Chapter 5) in order to enable transmission of data (such as video or audio conferences, timely news, etc.) to widely dispersed hosts without needing global broadcast. Besides manipulating support for multicast as a basic part of the protocol, IP-6 introduces the notion of "any-

4

es without a human be
l figure out its address
use the IPv6 version c
r for the needed inform
terface card (MAC-ad
and the 80 bit local su

TXT

Fig. 1a

Fig. 1b

PRIOR ART

Figure 1

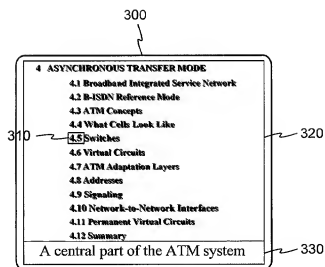


Fig. 4

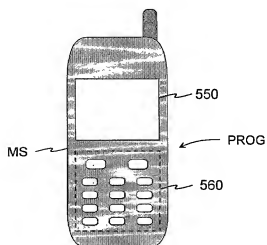


Fig. 5